

## CLAIMS

What is claimed is:

- 5        1. A printed circuit board, comprising:  
a prepreg:  
wherein optical fibers disposed at regular intervals; and  
an epoxy resin including the optical fibers embedded  
therein, and  
10       copper clads formed on both sides of the prepreg through a  
press process.
2. The printed circuit board as set forth in claim 1,  
wherein the copper clads are formed on any one side of the  
15       prepreg through the press process.
3. A printed circuit board, comprising:  
a prepreg including a waveguide layer to transmit an  
optical signal therethrough and an epoxy resin layer coated on  
20       the waveguide layer with an epoxy resin; and  
copper clads formed on upper and lower sides of the  
prepreg with attachment members interposed between the prepreg  
and the copper clads through a press process.
- 25       4. The printed circuit board as set forth in claim 3,

wherein the copper clads are formed on any one side of the prepreg with an attachment member interposed between the prepreg and the copper clad through a press process.

5           5. A method of producing a printed circuit board, comprising:

          a first step of disposing optical fibers on fixing jigs at regular intervals;

          a second step of dipping the fixing jigs including the  
10 optical fibers disposed on surfaces thereof in a vessel containing an epoxy resin to embed the optical fibers in the epoxy resin;

          a third step of separating the fixing jigs from the optical fibers embedded in the epoxy resin;

15           a fourth step of curing the epoxy resin including the optical fibers embedded therein to produce a semicured prepreg;

          a fifth step of forming copper clads on both sides of the semicured prepreg while aligning the copper clads with the semicured prepreg; and

20           a sixth step of pressing the semicured prepreg and copper clads aligned with each other at predetermined temperature and pressure.

          6. The method as set forth in claim 5, wherein the fixing  
25 jigs including the optical fibers disposed at regular intervals

on surfaces thereof are subjected to a rolling process to embed the optical fibers in the epoxy resin in the second step.

7. A method of producing a printed circuit board,  
5 comprising:

a first step of mounting fixing jigs, including optical fibers disposed at regular intervals thereon, on a copper clad;

a second step of conducting a rolling process for the fixing jigs, including optical fibers disposed at regular  
10 intervals thereon and mounted on the copper clad, to coat the optical fibers with an epoxy resin;

a third step of separating the fixing jigs from the optical fibers; and

a fourth step of semidrying the epoxy resin coated on the  
15 optical fibers to form a semicured prepreg on the copper clad.

8. A method of producing a printed circuit board, comprising:

a first step of forming a waveguide layer, including  
20 waveguides for a large area therein, to transmit an optical signal therethrough;

a second step of dipping the waveguide layer into an epoxy resin to form a semicured prepreg having a structure that the waveguide layer is embedded in the epoxy resin;

25 a third step of coating attachment members on upper and

lower sides of the semicured prepreg;

a fourth step of placing copper clads on the upper and lower sides of the semicured prepreg while aligning the copper clads with the semicured prepreg with the attachment members  
5 interposed between the semicured prepreg and the copper clads;  
and

a fifth step of pressing the semicured prepreg and copper clads aligned with each other at predetermined temperature and pressure.

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9. A method of producing a printed circuit board, comprising:

a first step of forming a waveguide layer, including waveguides for a large area therein, to transmit an optical  
15 signal therethrough;

a second step of conducting a first rolling process for a first side of the waveguide layer to coat the first side of the waveguide layer with an epoxy resin;

a third step of coating an attachment member on the first  
20 side of the waveguide layer coated with the epoxy resin in such a way that the attachment member is positioned on the epoxy resin;

a fourth step of placing a copper clad on the first side of the waveguide layer while aligning the copper clad with the  
25 waveguide layer with the attachment member interposed between

the epoxy resin and the copper clad;

a fifth step of pressing the waveguide layer and copper clad aligned with each other at predetermined temperature and pressure; and

- 5 a sixth step of conducting a second rolling process for a second side of the waveguide layer, on which the copper clad is not formed, to coat the second side of the waveguide layer with the epoxy resin.